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PLANNING FOR DOMESTIC EFFICIENCY

By HERBERT WHEATON CONGDON, A.I.A.

EFFICIENCY in factory design is an old story; but the urgency is due to a desire to accomplish more work in less time. The home is the place for rest and recuperation, and perhaps that is why it has not been considered from the factory viewpoint. Yet efficiency in the home will give more time for rest and relaxation, more comfort, less friction; and women having realized it have been studying methods of domestic economy, evolving such things as fireless-cookers, paper-bag cookery, vacuum cleaning, and the like. Unfortunately only a few pioneers have realized that much of the lost motion and wasted effort in doing housework is due to faulty planning; grouping of rooms and of the furniture or fixtures therein for esthetic ends and not practical, or worse yet, arrangement that is merely haphazard.

The humorist has held out promise of great reward for the inventor of the self-finding keyhole and the non-squeaking staircase for the how-come-you-so gentry of fiction and the humorous papers. Strange to say, inventors who have taken him seriously have failed to reap great wealth after accomplishing the desired end. A very ingenious device was on the market for a little time, by which pressure of a button similar to that of an electric bell, illuminated a tiny lamp on the bell circuit, so placed that its rays were thrown on the keyhole. Why this is no longer on the market I do not know, for a man who is chained to his keys often finds himself in his own light and would welcome a little assistance in finding that refractory keyhole, even when sadly sober.

But the problem is wider than that: domestic efficiency is fundamentally a matter for the architect to pre-arrange. Just as he can only plan an efficient factory by thoroughly understanding the processes used therein, so he can only plan an efficient dwelling if he knows all about the work of the house which our faithful women have striven to accomplish without the knowledge and annoyance of their lords and masters. Things are different now: the man and woman are each interested in the other's pursuits and duties, each striving to help the other by intelligent advice. Co-operation of an intelligent sort is more common between the architect and his client's wife as he himself proves that chafing-dish proficiency may develop into campfire efficiency and even domestic sufficiency!

Last summer a hundred and fifty thousand men in service on the Mexican border learned how to wash flannels; and for the first time in some cases possessed soft, unshrunken, and perfectly clean flannel shirts. They learned to cook, and to wash dishes, and to take care of the garbage and the fire and the thousand-and-one duties of a household; and being busy men they learned to do these things in the most efficient manner. Those men will be willing to co-operate with their architect to make their homes efficient working-places; and more than one architect has had his eyes opened for the need of reforms in his own planning!

The kitchen is the most neglected room in the house, really, although critics of house-plans always begin their inspections there. It is really the heart of the "plant," the place where the bulk of the daily work of the house is performed. Very often the housewife has to take upon herself the duties of cook and scullerymaid, furnace-man and waitress; in a well-planned house this duty is not very

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DETAIL, HOUSE OF E. M. FOWLER, ESQ., CHINO, CAL.
MR. MYRON HUNT, ARCHITECT

XUM

irksome, but in some houses the tired châtelaine wonders how anyone can ever be hired to do such fatiguing work.

The relationship of the kitchen to the rest of the plan varies according to the problem. In a very large house it should be in a service wing, and connected to its own suite of dining and sitting rooms: a house within a house. In a very small house it will be within the rectangle of the main plan, related very closely to the dining room. Where this is necessary comfort suggests that the room over it be an important bedroom. A sarcastic client once directed that the guest-room be placed directly above the kitchen. When his architect called his attention to the disturbances of those precious hours of morning slumber that were sure to ensue, he replied in the terse words of Poor Richard: "After three days, fish and visitors *stink*." Efficient planning!

Where the kitchen is not in a service wing, it should be so placed that the maid (presumably the only servant) can reach the front door in the fewest steps and without passing through a dining-room. From it, the cellar should be easily reached from the cool depths of which roots, vegetables and preserves will be brought; the back stairs, if the house is large enough for so necessary a luxury, may go up over the cellar stairs. The entrance from outdoors ought to be so planned that the tradesmen may deliver their bundles without tracking all across the floor, and in this connection it is well to provide one of the modern package boxes that are built in the wall, permitting tradesmen to make deliveries without entering the house at all. The door locks automatically when closed, and remains locked until the inner door has been opened, the article removed, and the

PORCH FIREPLACE

HOUSE OF J. H. LYNN, ESQ., LANGHORNE, PA.

MESSRS. DUHRING, OKIE & ZIEGLER, *ARCHITECTS*

THE ENCLOSED PORCH
HOUSE OF J. H. LYNN, ESQ., LANGHORNE, PA.
MESSRS. DUHRING, OKIE & ZIEGLER. *ARCHITECTS*

inner door again closed, when the outer door is again operative. The device is inexpensive, but saves the maid many steps if the grocer happens to come when she is making beds on the third floor, as well as saving that neighborhood gossip a considerable amount of time.

Except in the very small house, it is unwise to use the kitchen as a laundry as well. The necessary smells and steam of wash-day do not belong in the kitchen, and if a laundress is employed she is apt to be in the way of the cook if in the same room, especially if the kitchen is of the modern small but efficient type.

The whole question of the kitchen, its dependencies and equipment, has been well treated by Mrs. Child in her book "The Efficient Kitchen," but as her treatment is from the lay viewpoint and not that of the architect, a few matters should be developed further. In the first place, she makes clear the folly of the "large and airy" kitchen beloved of the Yankee housewife, a true "*salle des pas perdus.*" Lost steps, she points out, mean fatigue without the reward of work accomplished. Again, she points out the essential relationship of the three work-places in the kitchen: the stove where the food is cooked, the kitchen cabinet where much of it is prepared, and the sink where certain foodstuffs are prepared and where the dishes and utensils are washed. A central table, equally accessible to these three articles, is also usually required.

The stove should be the center for the other two as so much of the work is done there. Its location should assure good lighting both by day and night. Often the worker has to stand in her own shadow because the architect, never having worked at a stove, did not think of it in arranging his windows and lighting-

outlets. The stove itself may be either gas or coal or a combination of the two; and it is worth remembering that the electric stove applying the principle of the so-called fireless cooker is now a commercial possibility, especially in those favored localities where electric power is cheap. A certain village in Vermont is said to use electric power for cooking in over half of its dwellings, as it is close to a water-power and the current sells for about 4c a kilowatt. Electric stoves are used in many cooking schools, even at city rates for power, and women who have used them are enthusiastic over them. When one considers the possibilities in the way of automatic control by clocks and thermostats, it is seen that they possess conveniences as far in advance of the gas range as that is in advance of the coal stove.

The kitchen dresser should be more than a mere receptacle for dishes and utensils; now that ready-built "kitchen-cabinets" are made in so many sizes and styles and even in units that may be combined to suit special needs, there is little excuse for the old-style dresser. The kitchen-cabinet is as compact as the arrangements of a dining-car pantry: it contains receptacles for dry groceries arranged so as to be readily accessible, storage spaces for the dishes and utensils required in the preparation of food, and some form of sliding shelf or pastry-board. Unfortunately a number of the cabinets on the market have been filled with foolish novelties meant as selling-features which in no wise add to their usefulness but which certainly detract from their appeal to a serious-minded architect. Bulky articles like flour and sugar should be in receptacles which may be filled and used without the necessity for a heavy lift for the woman worker. The flour receptacle generally has a sifter built into it, and with the sugar container is provided with some sort of valve or gate to control the outgo, as well as a glass gage to show the amount in reserve.

The kitchen cabinet does not altogether replace the dresser; some storage space is required in the kitchen for dishes other than those used in cooking. Indeed, in small houses it is better to have the dining-room dishes kept in the kitchen where they are contiguous to the kitchen sink in which they are washed: a butler's pantry as a dish washing place is not convenient unless several servants are kept. It is easier to wash both dishes and cooking utensils at a common place, and the kitchen sink is the place. Even if dishes are kept in the pantry, it is advisable to make the dresser open both to the dining room and to the pantry. On the dining room side the doors may be of glass in such decorative use as seems fitting; on the pantry side they should be panelled. This makes it possible to set the table from this dresser without leaving the dining room, while the dishes may be replaced after washing from the pantry side. A further development of this is to set the dish-closet or dresser in the wall separating the kitchen and dining-room, the pantry becoming a mere passage. In this way many steps are saved both in setting the table and in replacing the washed dishes in the dresser; and saving steps saves both time and fatigue.

The dresser ought to have drawers in it for the storage of table linen, for table cutlery and for silverware. The latter should be in a drawer subdivided by thin wood and lined with cloth or velvet. This drawer or drawers should be capable of sliding out into the dining room and also into the kitchen, for use as outlined above for the dish-shelves. The silver drawer should be small enough to be easily carried, as it will often be removed from the dresser and taken upstairs for protection overnight or to a safe-deposit vault for the summer. Dividing it makes the setting of the table much easier, as each species of fork or spoon is kept separate. There is no advantage in having the linen drawers slide into both the dining room and kitchen, and indeed, many persons prefer to keep table linen on shelves in a cuddy closet beneath the shallow silver and cutlery drawers.

The kitchen sink is probably the least efficient part of the domestic economy. Almost universally it is set too low, is too small, and too shallow. Anyone who will wash dishes in the average kitchen sink will finish with a sharp backache, due to

DETAIL TERRACE FRONT

ALTERATIONS AND ADDITIONS TO HOUSE OF CHARLES I. CORBY, ESQ., GARRETT PARK, MD.
MR. CHARLES BARTON KEEN, *ARCHITECT*

(For additional illustrations of this house, see plate section)

the uncomfortable stoop that is made necessary by the low sink. An apron is required to protect the worker from the slop of the swirling dishwater, which could not slop over if the sink was a little deeper; and, finally, many sinks are so small that they will not hold a dish-pan large enough for the number of dishes to be washed. Hence a small pan is used with the need of constant emptying and refilling with clean hot water; or the usual alternative of insufficient washing of the dishes and a consequent greasiness thereof. Drainboards, too, are perversely small or as perversely on the wrong side. The really comfortable sink has two drainboards, one on the right for the unwashed dishes and another on the left for the washed but still soapy ones. Ample room makes stacking these unnecessary, and therefore the chief source of chipped and broken dishes is done away with. Many dishes are also chipped by knocking against the faucets, which as a rule are too low and project too far. The usual sink is also set on legs which interfere with wiping up beneath it. In our own practice we use a sink about 8 in. deep if we can get it (and there is not much choice) and set it on concealed hangers so the bottom of the dishpan will be not less than 2 ft. 9 in. above the floor, having a drainboard at each end of the same width as the sink and at least 2 ft. long. The size of the sink depends on the size of the house, of course, but we find that 21 x 36 in. is a very convenient size. In parish houses, where there are a great many dishes to wash after a big supper, 24 x 48 in. will be a better size, as it permits the use of two dishpans. A convenience which is hardly a part of the plumbing contract is a 3-ft. length of rubber tubing with end arranged to slip over the hot water faucet, with which the washed but soapy dishes may be thoroughly rinsed and scalded, then left to dry of their own heat. With the exception of glassware, this gives a satisfactory result. If this is to be done, the drainboard must be set with a good pitch, and be deeply grooved. For material, we prefer the ash drainboard to enameled iron, as it is less apt to chip dishes.

Good lighting is as necessary for the sink as the stove: and a 6-in. shelf immediately above the splash-back of the sink, and about 4 ft. long, is a much appreciated place for the clock and brushes and cans or boxes of soap-powder or other cleansers.

Before leaving the kitchen a word as to interior finish may be useful. As a selling point, a nice white enameled kitchen is fine: but as a thing to live with when servants are scarce it is an abomination. Pine or whitewood, stained and varnished, has the merit of not showing dirt: and the white surface shows dirt so effectively that it needs constant care. Two or three batches of pancakes or other fried dishes will coat it with dust-catching grease in a thin and tenacious film. Of course the neat housewife wants to remove this, and if it is visible enough to annoy her it must be removed, happen what may. But if she is wise and wants to keep house instead of being kept by her house, she will permit her architect to finish the kitchen woodwork in a fairly dark stain and varnish, and to paint the walls a warm buff. "Out of sight, out of mind" and the film of grease and dust will only have to be scrubbed off a couple of times a year. If this be treason, make the most of it.

This same grease-film makes dresser and cuddy doors advisable instead of the open shelving that Mrs. Child advises for her ideal kitchen: the glazed doors will catch it, and they are easier washed than stacks of dishes and utensils.

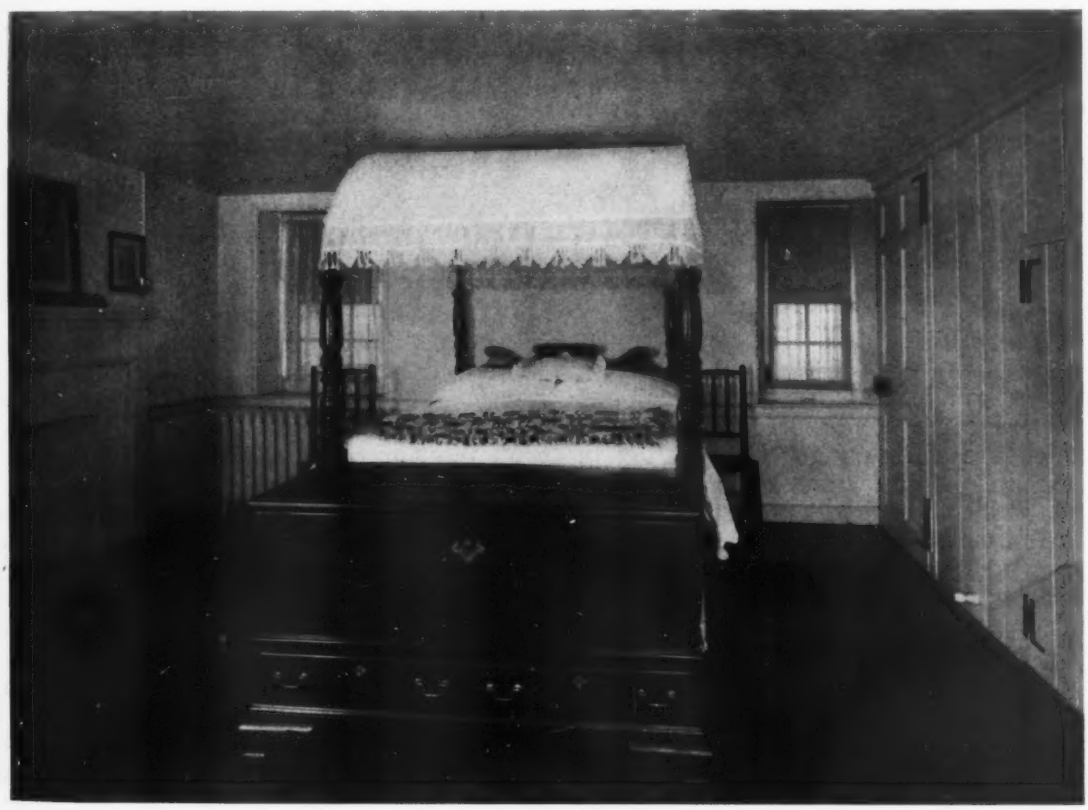
The pantry is an adjunct to the kitchen as well as the dining room. Old New England houses have two such rooms, one being a pantry proper and the other "the butt'ry," a cold room in which the pie-crust is made and where the cooky-jar beloved of boyhood always stands in the corner near the door, on the lower shelf. A pantry, in a large house, is the storage place for the dining-room dishes and silver. In such a case it requires a sink for dish-washing, the kitchen sink being used entirely for rough work. It then becomes the headquarters of the butler, and should be provided with a silver safe and a plate-warmer. In smaller houses

it is an excellent place for the refrigerator: but this should be arranged for outside icing unless the modern electric refrigeration is used.

The kitchen closet has not been mentioned because it is better omitted. At best it is a catch-all for decrepit utensils; at worst it is a breeding place for vermin. Large utensils like kettles and ice-cream freezer are best kept in the cuddy beneath the kitchen-cabinet. The smaller utensils should be hung, French-fashion, on hooks which may be either on the wall or on a frame over the center table, but should be immediately accessible to the stove. This not only saves steps, but by having everything out in plain view insures cleanliness and prevents the accumulation of worthless utensils. Many of the smaller utensils have their places provided for in the kitchen-cabinets, so the "*batterie de cuisine*" will consist mostly of sauce-pans, frying pans and broilers, with the attendant flesh-forks and cooking spoons.

Next in importance as a point of attack are the bathrooms. Presumably there will be several. Presumably, too, most of them have the character of private baths, so that there is little need of putting the water-closet in a separate room from the bath. This was considered a luxury in the days when one bathroom served an entire family.

Probably one of these toilet-rooms at least will have two doors, one opening into the adjoining bedroom, one into the hall or another bedroom. Plan to have these adjacent, and for the lock styles of the doors to adjoin, the doors swinging out from the bathroom. If this is done, a long hook on one door engaging with an eye on the other door will fasten both at the same time, and the occupant of the room cannot leave without unfastening



BED ROOM

HOUSE OF J. H. LYNN, ESQ., LANGHORNE, PA.

MESSRS. DUHRING, OKIE & ZIEGLER, *ARCHITECTS*

both doors. Those who have forgotten to secure the other door have had their embarrassing experiences, and those who have found themselves locked out of their private bath by a forgetful guest will welcome this simple device. It costs nothing, but it makes for efficiency.

In the case of a toilet being for general use, if possible plan the water-closet near the entrance door, with the door opening toward it. Then if the occupant of the room has forgotten to fasten the door the opening door will swing against his foot, concealing him, avoiding embarrassment and securing the entrance.

The lighting of the mirror in the bathroom may generally be improved if the plan is studied in time. A man who shaves daily will find it a convenience if there are two small windows with sills high enough to conceal him from the breast down, from outside view, and placed with a mullion about a foot wide. On this mullion a mirror should be set, and over the mirror a bracket for electric light. Both sides of his face are then properly illuminated for shaving either day or night, and there is no need of the discomfort that too many persons have to put up with. Convenience suggests that the lavatory also should be placed here, and that the mirror should be set in the door of a wall-cabinet, so that the operation may be undertaken without the expenditure of a single step.

Little can be said in regard to the plumbing fixtures, unless a warning is given against solid porcelain bathtubs, which are a luxury for the wealthy indeed; if a person wants a really hot bath the tub has to be filled and emptied two or three times before the massive earthenware gets heated through and ceases to absorb the heat of the water, chilling it to a degree well below that desired.

The location of furniture is seldom thought of in planning a dwelling, and it ought to be one of the controlling factors, at least in fenestration. I remember a very handsome dwelling that the proud owner was showing me over while the plasterers were at work; bathrooms and closets and all sorts of comforts had been studied out by his wife and their architect, but he was greatly chagrined when I pointed out to him that there was not a single bedroom in the house where a double bed could be used, so numerous were the closet doors and the windows. It was another example of inefficient planning.

Where sleeping porches are used they should be planned to avoid the storm winds and the early morning sun, and should be provided with some means of protection against driving storms or snow. The floor should be well drained, but there should not be any saddle or step between it and the inside floor, as that would make the moving of beds and chairs difficult.

Last of all is the linen closet, or linen room, as it ought to be. As a rule it is the last thing considered, and is tucked in some space that is sliced from a closet, generally in a dark corner of the hall. Household linen is of two sorts, table linen and bedroom linen. The former should be kept in the pantry, if it is abundant, or in a drawer or cuddy of the dining-room closet in a small house, close to its origin, the laundry, and to its end, the dining-room table. Bedroom linen should be kept on the second floor, readily accessible to bedrooms and baths. It is bulkier and more abundant than table linen, and should be kept in a properly lighted room which is large enough to keep each species distinct —guest towels in one neat pile, bath towels in another, and so on. Shelves are better for drawers for linen, but for storing blankets nothing can be better than a drawer made of red cedar and fitted with an interior cover of the same material, which lifts out. These drawers should be beneath a wide counter shelf where the linen is placed as it is removed from the laundry basket and where it is sorted. If a sewing room is provided (and every man will vote for one), the linen may well be stored in a dresser along one wall. Glazed doors, while good looking, are more of a care than paneled wooden ones.

Every woman thinks she knows all about bedroom closets, going on the idea that size is all that is required. The large closet is most always inefficient, wasting precious space. The ideal closet is wide and shallow in proportion, but should never be less than 24 in. deep in the clear.

It should be provided with *two* doors, so that when they are open the whole interior is exposed to view, permitting ease of access to any garment, good light and easy cleaning of the floor and shelves. Shoe-racks on the bottom rails of the doors keep these articles of dress accessible and permit easy sweeping of the floor, which should be on a level with that of the bed-room and without door saddle for the same reason. If the doors are centered on the width of the closet, there will be shelf-room at each side, preferably not much over a foot in depth, for hatboxes and the like. These shelves should be about a foot apart for the greatest usefulness. One shelf, the top one, should go the whole width of the closet and practically the whole depth as well, so as to permit a brace from the rear of the top casing of the door. It ought to be about 5 ft. 6 in. above the floor, and instead of having hooks for hanging the garments should be provided with extension clothing hangers such as are used in clothing shops. The cost is very little and the convenience is very great. Garments are hung most compactly, and by the extension feature may be readily inspected and gotten at. A similar arrangement in the cedar closet more than doubles its capacity.

DINING ROOM
HOUSE OF J. H. LYNN, ESQ., LANGHORNE, PA.
MESSRS. DUHRING, OKIE & ZIEGLER, *ARCHITECTS*
(For additional illustrations of this house, see plate section)

There is no secret about efficient planning—it merely means an analysis of a problem that few persons have thought about. If these few pointers have led anyone along new paths of thought, they will have been worth while. But sometimes we think more about world problems when we should drop our eyes to the more humble problem that is always with us, homemaking.

LIGHTING THE COUNTRY HOUSE

THE question of providing modern lighting facilities is one which in the past has been more or less of a stumbling block in the path of every architect who undertook to design a country home, country club, inn, summer hotel, and, in fact, any kind of a building which was to be located beyond the range of the public lighting service. This is due, of course, to the fact that the extended use of electricity in the city has brought city people to view it almost in the nature of a necessity rather than a luxury and the city people who undertake to build in the country, especially if the building in question is to be a country home, are therefore reluctant to accept any system of lighting that does not provide electric lights.

The generating of electric current is a comparatively simple matter, but it has proved anything but a simple problem to develop isolated lighting plants of a size suitable for installation in country homes or clubhouses which could be manufactured and sold for reasonable prices and which could be counted on to give dependable service at a reasonable cost and without expert attention. In the case of country clubhouses, summer resort hotels and large buildings of that general class, original and operating costs are not always of prime importance and it is sometimes

(*Continued on page* 263)

HALL

ALTERATIONS AND ADDITIONS TO HOUSE OF CHARLES I. CORBY, ESQ., GARRETT PARK, MD.
MR. CHARLES BARTON KEEN, *ARCHITECT*

(*For additional illustrations of this house, see plate section*)

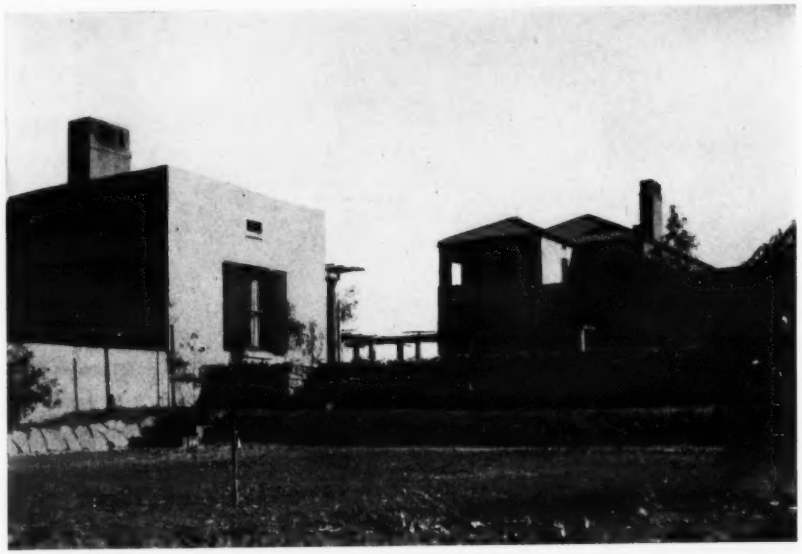
MAIN ENTRANCE DETAIL

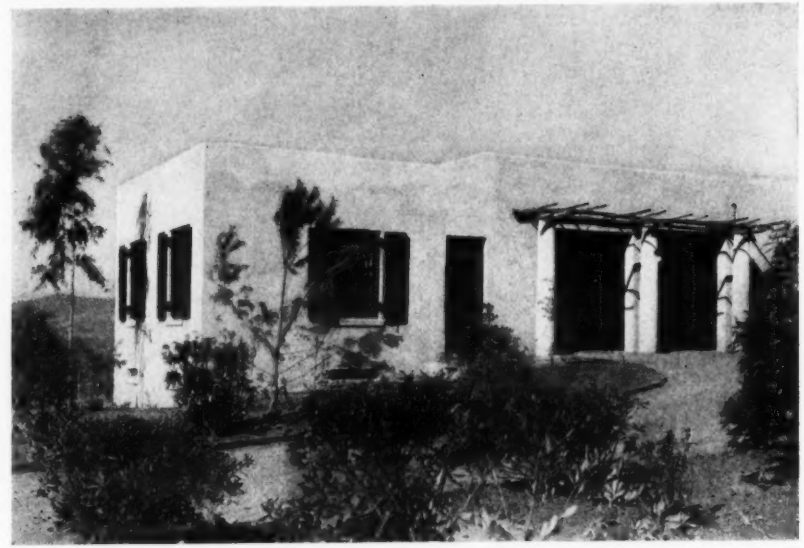
HOUSE OF E. M. FOWLER, ESQ., CHINO, CAL.

MR MYRON HUNT, *ARCHITECT*

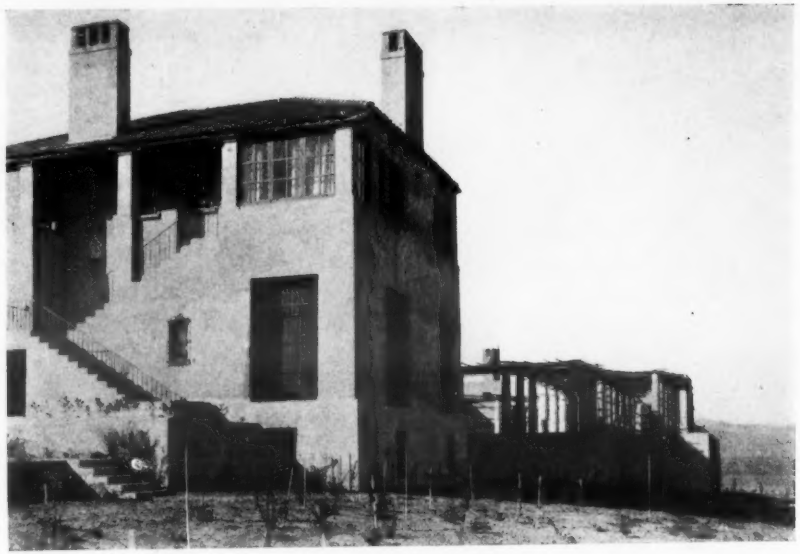
MR MYRON HUNT, *ARCHITECT*

XUM





GARAGE



HOUSE OF E. M. FOWLER, ESQ., CHINO, CAL.

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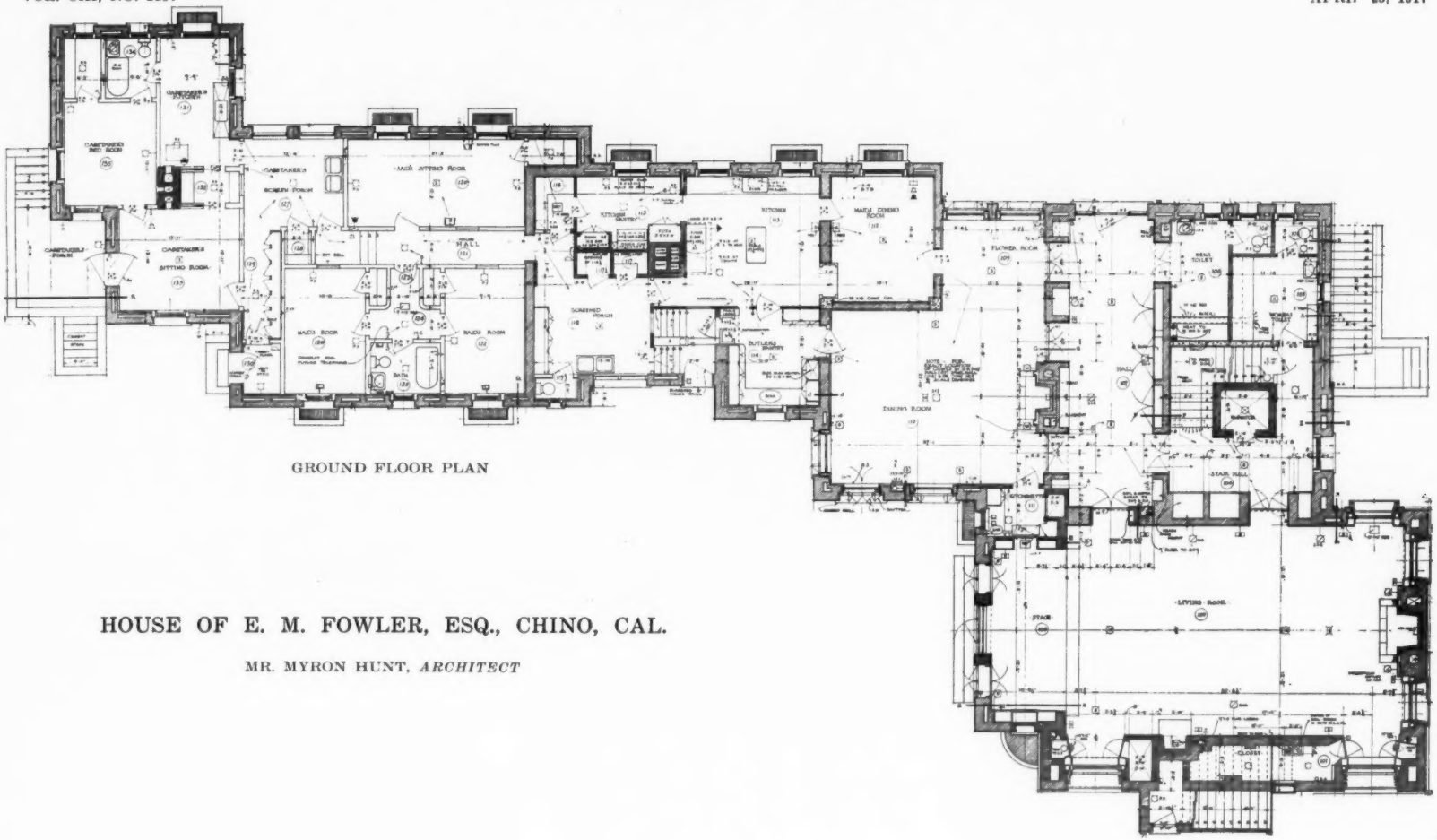
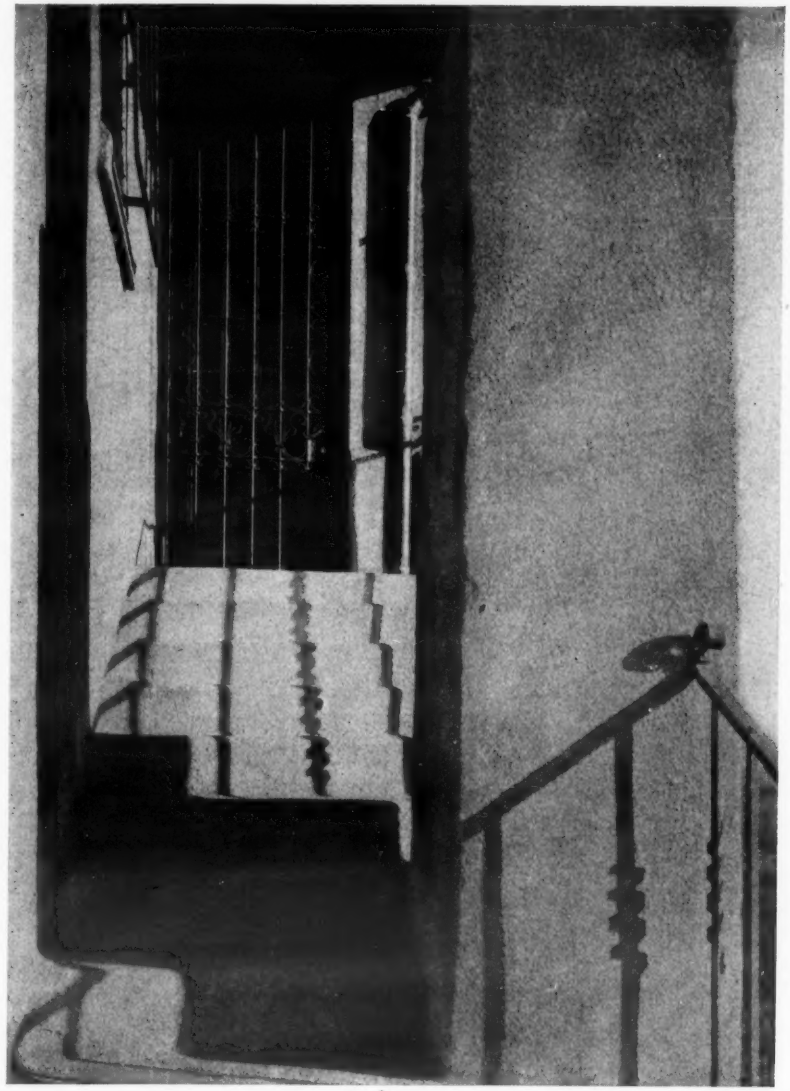
MR. MYRON HUNT,
ARCHITECT



GROUND FLOOR PLAN

HOUSE OF E. M. FOWLER, ESQ., CHINO, CAL.

MR. MYRON HUNT, *ARCHITECT*



EXTERIOR DETAILS

HOUSE OF E. M. FOWLER, ESQ., CHINO, CAL.

MR. MYRON HUNT, *ARCHITECT*

HOUSE OF E. H. FOWLER, ESQ., ORANGE, CAL.

MR. MYRON HUNT, *ARCHITECT*

LIVING ROOM

LIVING ROOM

HALL

LIVING ROOM

HOUSE OF E. M. FOWLER, ESQ., CHINO, CAL.

MR. MYRON HUNT, *ARCHITECT*

HALL

LIVING ROOM

HOUSE OF E. M. FOWLER, ESQ., CHINO, CAL.

MR. MYRON HUNT, *ARCHITECT*

TERRACE FRONT

ALTERATIONS AND ADDITIONS TO HOUSE OF CHARLES I. CORBY, ESQ., GARRETT PARK, MD.

MR. CHARLES BARTON KEEN, *ARCHITECT*

(For additional illustrations of this house, see text pages)

MR. CHARLES BARTON KELLY, ARCHITECT

(For additional illustrations of this house, see text pages)

LIVING ROOM PORCH

ALTERATIONS AND ADDITIONS TO HOUSE OF CHARLES I. CORBY, ESQ., GARRETT PARK, MD.

MR. CHARLES BARTON KEEN, *ARCHITECT*

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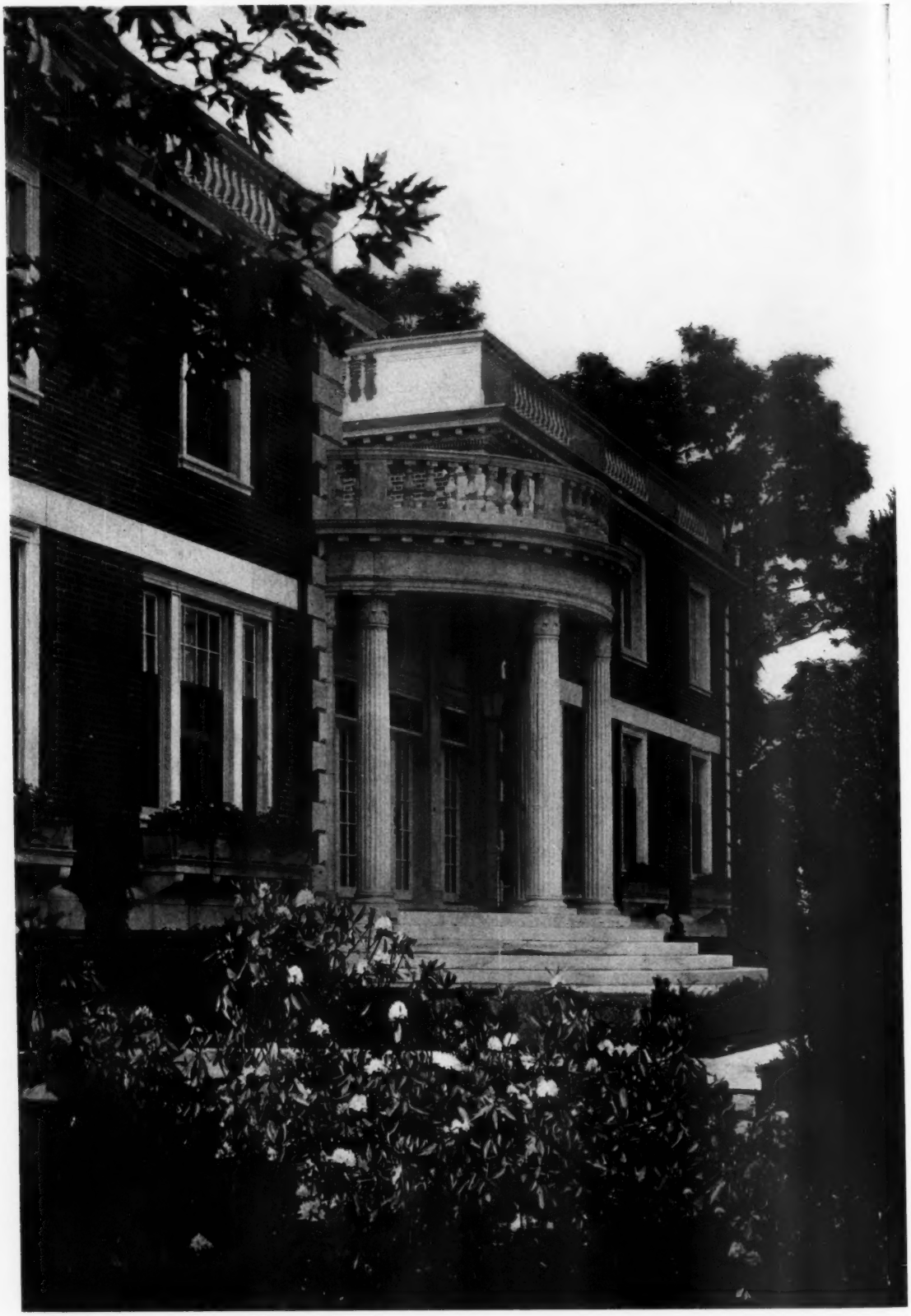

DETAIL ENTRANCE FRONT

ALTERATIONS AND ADDITIONS TO HOUSE OF CHARLES I. CORBY, ESQ., GARRETT PARK, MD.

MR. CHARLES BARTON KEEN, *ARCHITECT*

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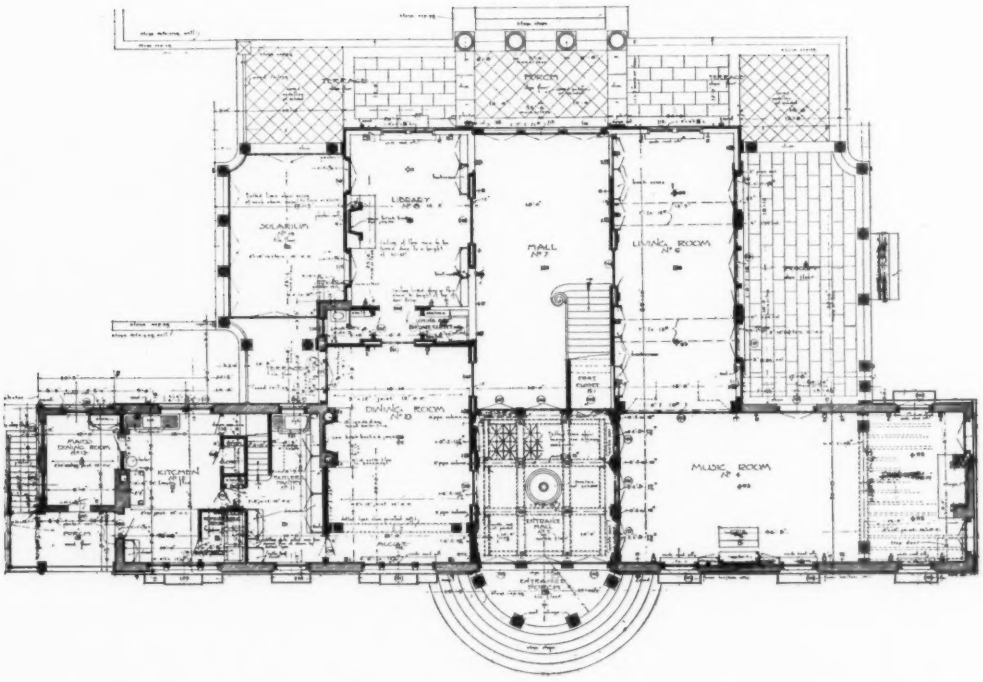
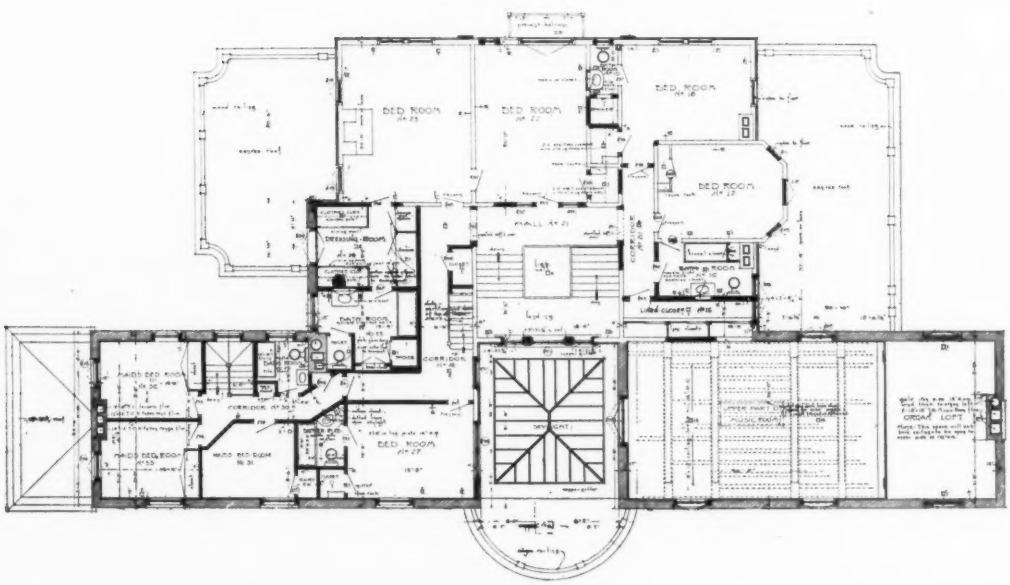


ALTERATIONS AND ADDITIONS TO HOUSE OF CHARLES I. CORBY, ESQ., GARRETT PARK, MD.

MR. CHARLES BARTON KEEN, *ARCHITECT*

VIEW FROM TERRACE FRONT



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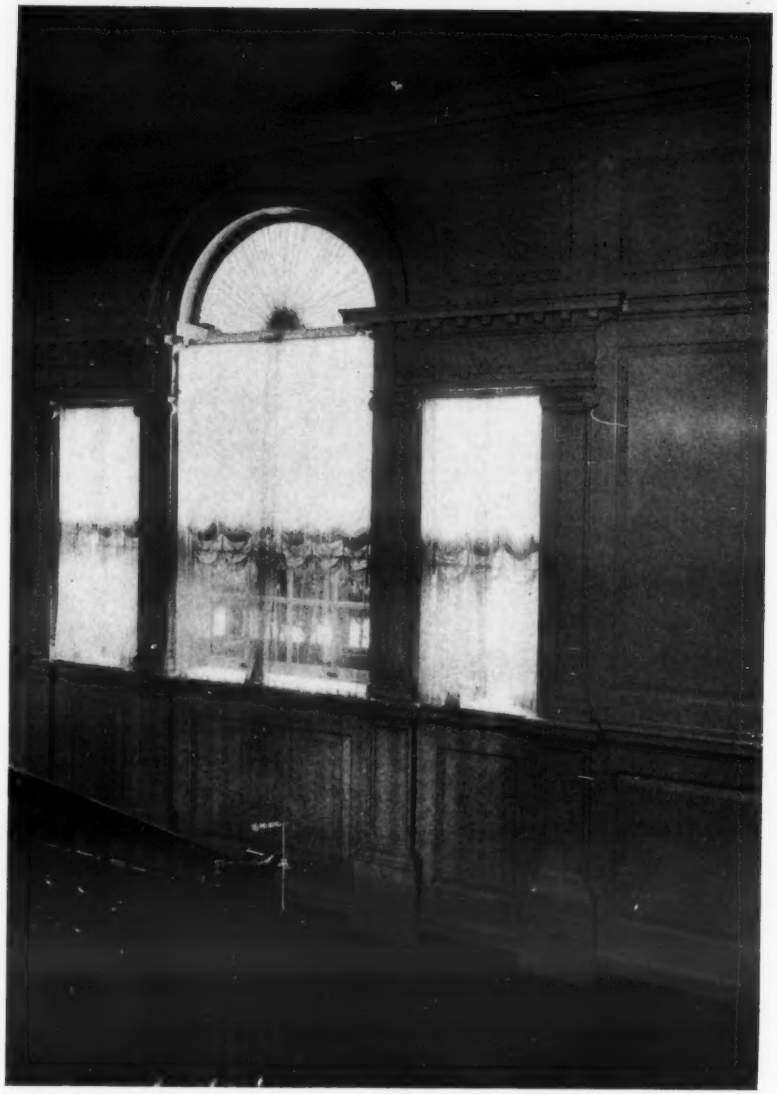
MR. CHARLES BARTON KEEN, *ARCHITECT*



ALTERATIONS AND ADDITIONS TO HOUSE OF CHARLES I. CORBY, ESQ., GARRETT PARK, MD.

MR. CHARLES BARTON KEEN, *ARCHITECT*

MR. CHARLES BARTON KEEN, *ARCHITECT*

XUM

MUSIC ROOM

ALTERATIONS AND ADDITIONS TO HOUSE OF CHARLES I. CORBY, ESQ., GARRETT PARK, MD.

MR. CHARLES BARTON KEEN, *ARCHITECT*

XUM

HOUSE OF AUSTIN CHURCH, ESQ., TRENTON, MICH.

MESSRS. DONALDSON & MEIER, *ARCHITECTS*

MESSRS. DONALDSON & MEIER, *ARCHITECTS*

XUM

GARDEN FRONT

HOUSE OF AUSTIN CHURCH, ESQ., TRENTON, MICH.

MESSRS. DONALDSON & MEIER, *ARCHITECTS*

XUM

HOUSE OF CLARENCE V. BURRAGE, ESQ., WALPOLE, MASS.

MESSRS. KILHAM & HOPKINS, *ARCHITECTS*

(For additional illustrations of this house, see text pages)

(For additional illustrations of this house, see text pages)

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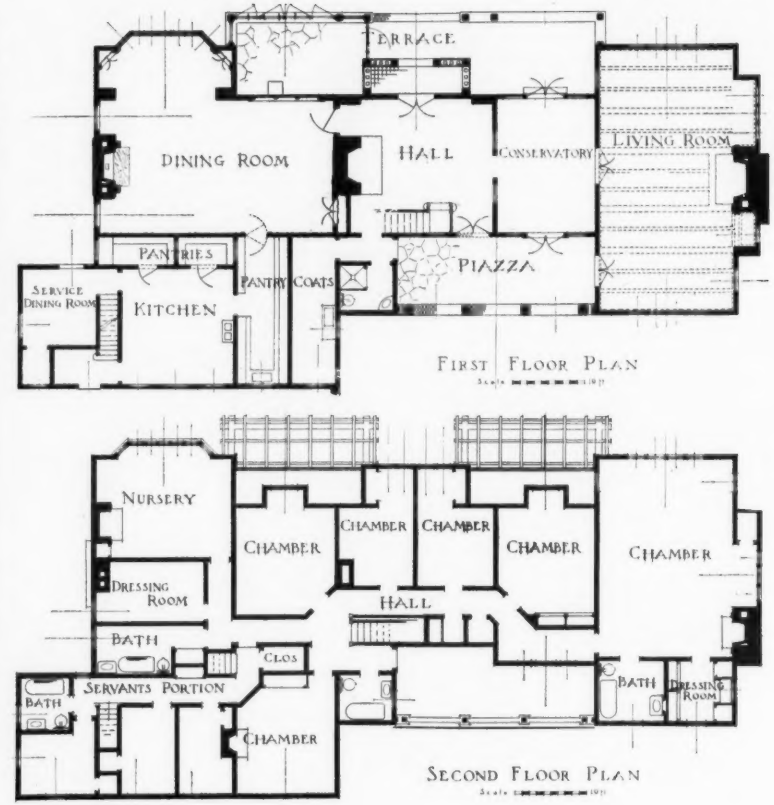
ALCOVE IN DINING ROOM



HOUSE OF CLARENCE V. BURRAGE, ESQ., WALPOLE, MASS.

□ □

MESSRS. KILHAM & HOPKINS,
ARCHITECTS

HOUSE OF MRS. ALLEN J. SMITH, RADNOR, PA.

MESSRS. WALTER T. KARCHER & LIVINGSTON SMITH, *ARCHITECTS*

Tan stucco on hollow tile, white wood, bright green shutters, dark green split shingle roof.

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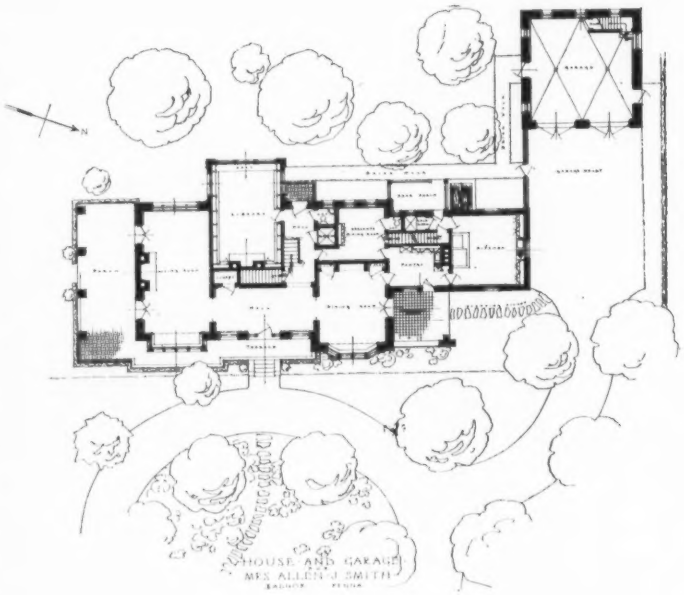
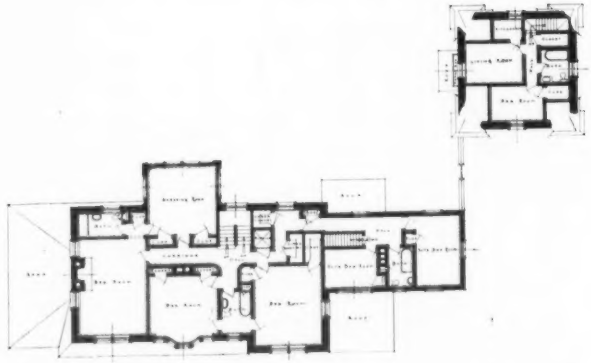




HOUSE OF MRS. ALLEN J. SMITH, RADNOR, PA.

MESSRS. WALTER T. KARCHER & LIVINGSTON SMITH,
ARCHITECTS

THE LIBRARY

SIDE OF LIVING ROOM

DINING ROOM

Wood panelling to 6 feet high, silver fixtures. Rug silver grey, hangings blue. Wall above panelling, ivory.

ENTRANCE HALL

Wood base, trim and chair mold. Wood panel molds on linen covered walls. Plaster cornice. General color of hangings and rug, deep claret.

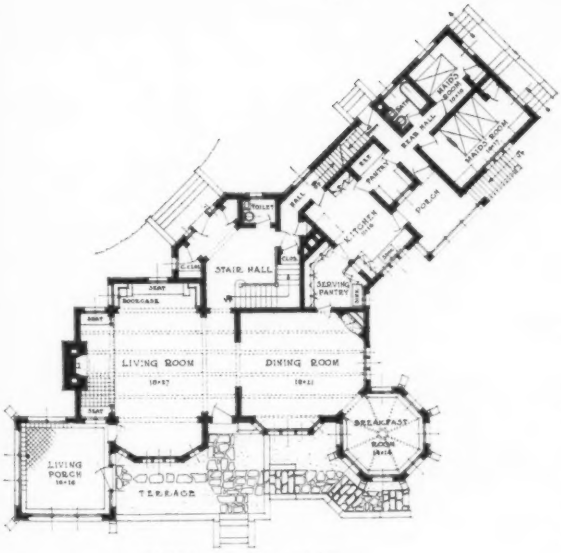
HOUSE OF MRS. ALLEN J. SMITH, RADNOR, PA.

MESSRS. WALTER T. KARCHER & LIVINGSTON SMITH, *ARCHITECTS*

XUM

A HOUSE AT LAKE MINNETONKA, MASS.

MESSRS. HEWITT & BROWN, *ARCHITECTS*



FIRST FLOOR PLAN

SECOND FLOOR PLAN

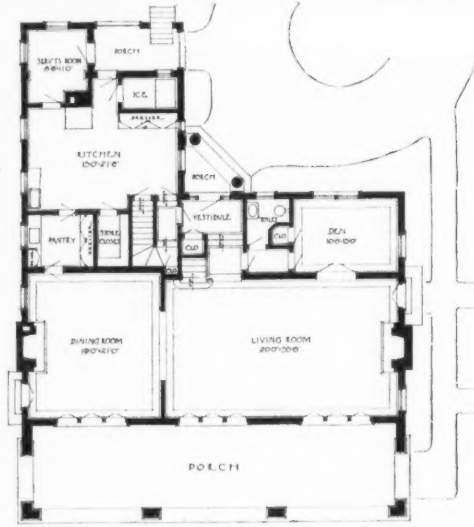
A HOUSE AT LAKE MINNETONKA, MINN.

MESSRS. HEWITT & BROWN, *ARCHITECTS*

XUM

HOUSE FOR B. E. DAVID, ESQ., FLORIVAL FARMS, WESTCHESTER CO., N. Y.

MR. ROBERT D. KOHN, *ARCHITECT*



HOUSE OF B. E. DAVID, ESQ., FLORIVAL FARMS, WESTCHESTER CO., N. Y.

MR. ROBERT D. KOHN, *ARCHITECT*

HOUSE OF J. H. LYNN, ESQ., LANGHORNE, PA.

MESSRS. DUHRING, OKIE & ZIEGLER, *ARCHITECTS*

HOUSE OF J. H. LYNN, ESQ., LANGHORNE, PA.

MESSRS. DUHRING, OKIE & ZIEGLER, *ARCHITECTS*

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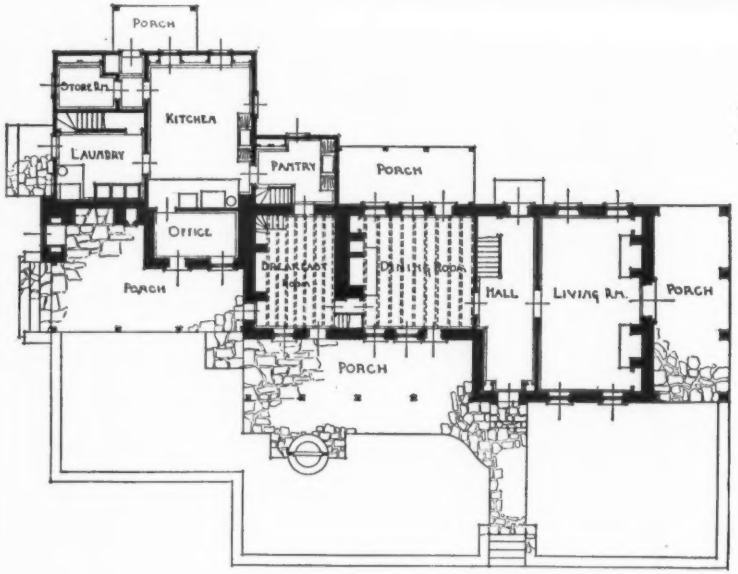

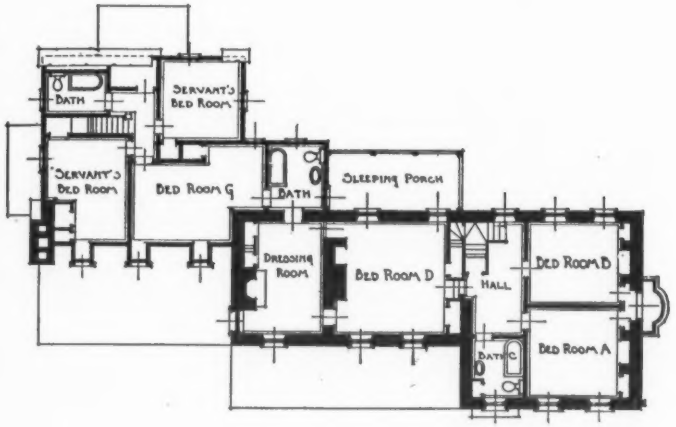

HOUSE OF J. H. LYNN, ESQ., LANGHORNE, PA.

MESSRS. DUHRING, OKIE & ZIEGLER, *ARCHITECTS*

THE DINING ROOM PORCH

HOUSE OF J. H. LYNN, ESQ., LANGHORNE, PA.

MESSRS. DUHRING, OKIE & ZIEGLER, *ARCHITECTS*

SLEEPING PORCH—REAR ELEVATION

THE "HIGH COLUMN" PORCH

HOUSE OF J. H. LYNN, ESQ., LANGHORNE, PA.

MESSRS. DUHRING, OKIE & ZIEGLER, *ARCHITECTS*

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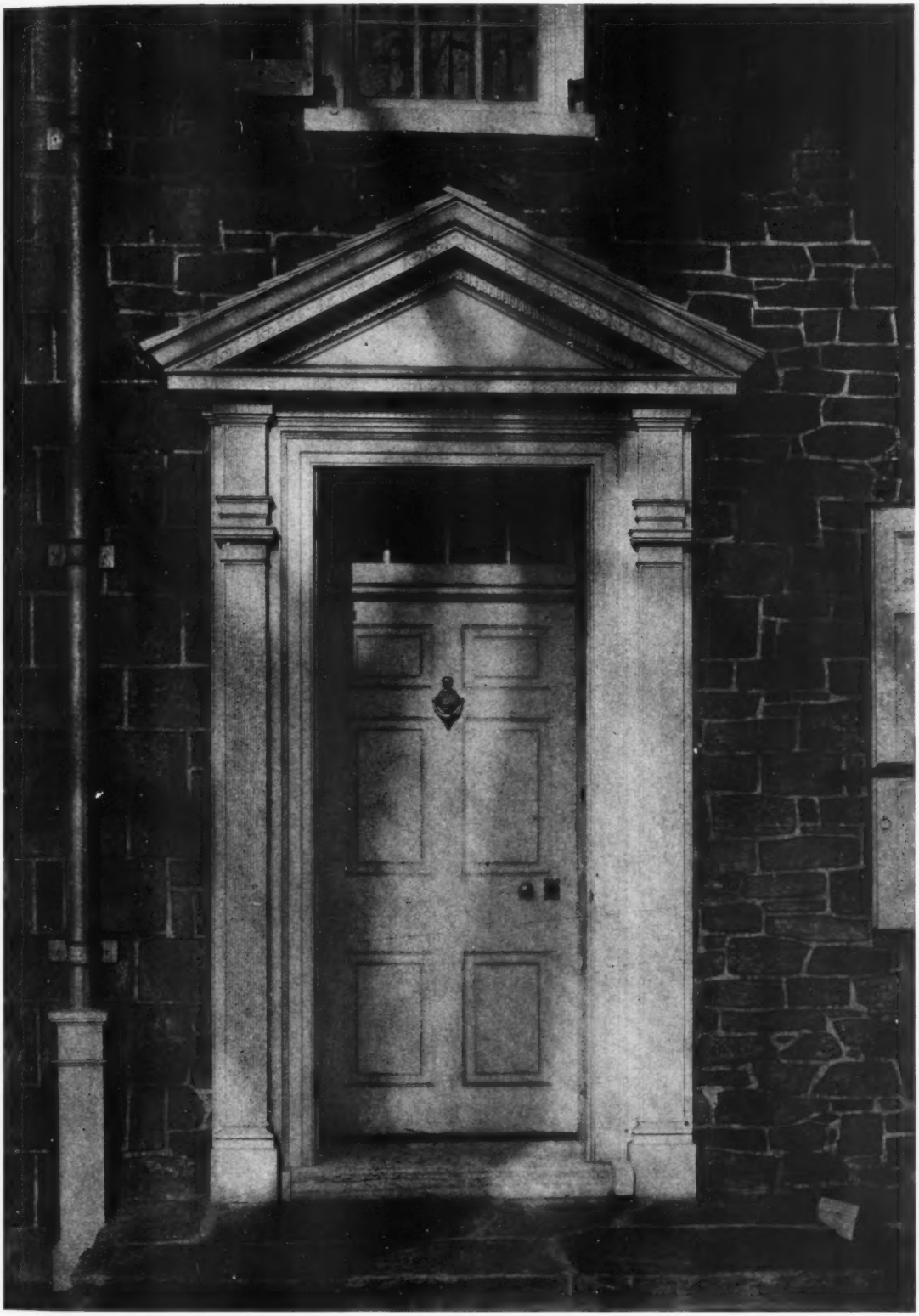

DETAIL OF MAIN ENTRANCE

HOUSE OF J. H. LYNN, ESQ., LANGHORNE, PA.

MESSRS. DUHRING, OKIE & ZIEGLER, *ARCHITECTS*

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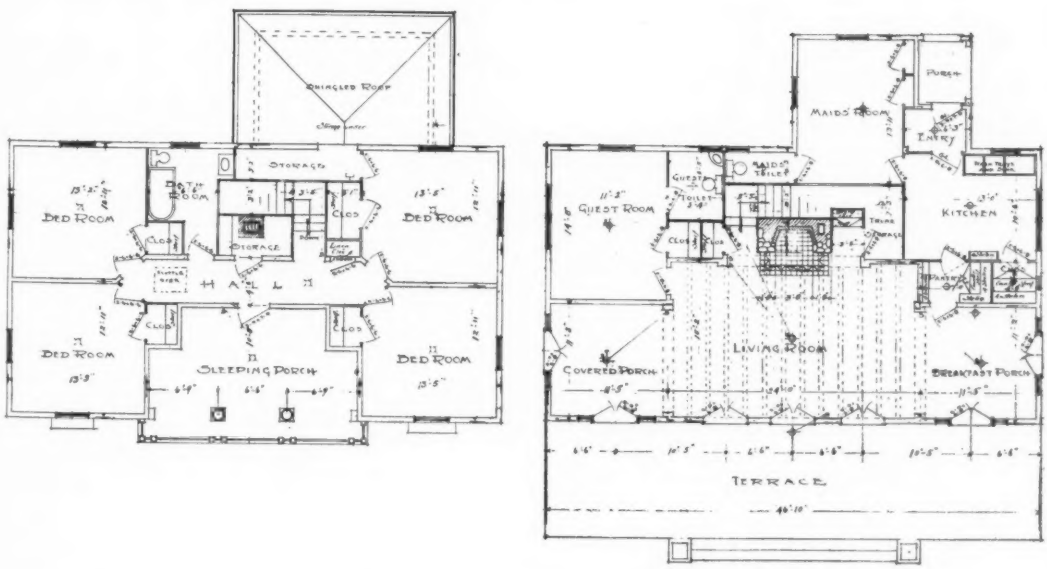
HOUSE OF MRS. W. H. BURR, DUXBURY, MASS.

MR. HAROLD FIELD KELLOGG, *ARCHITECT*

LIVING ROOM



HOUSE OF MRS. W. H. BURR, DUXBURY, MASS.

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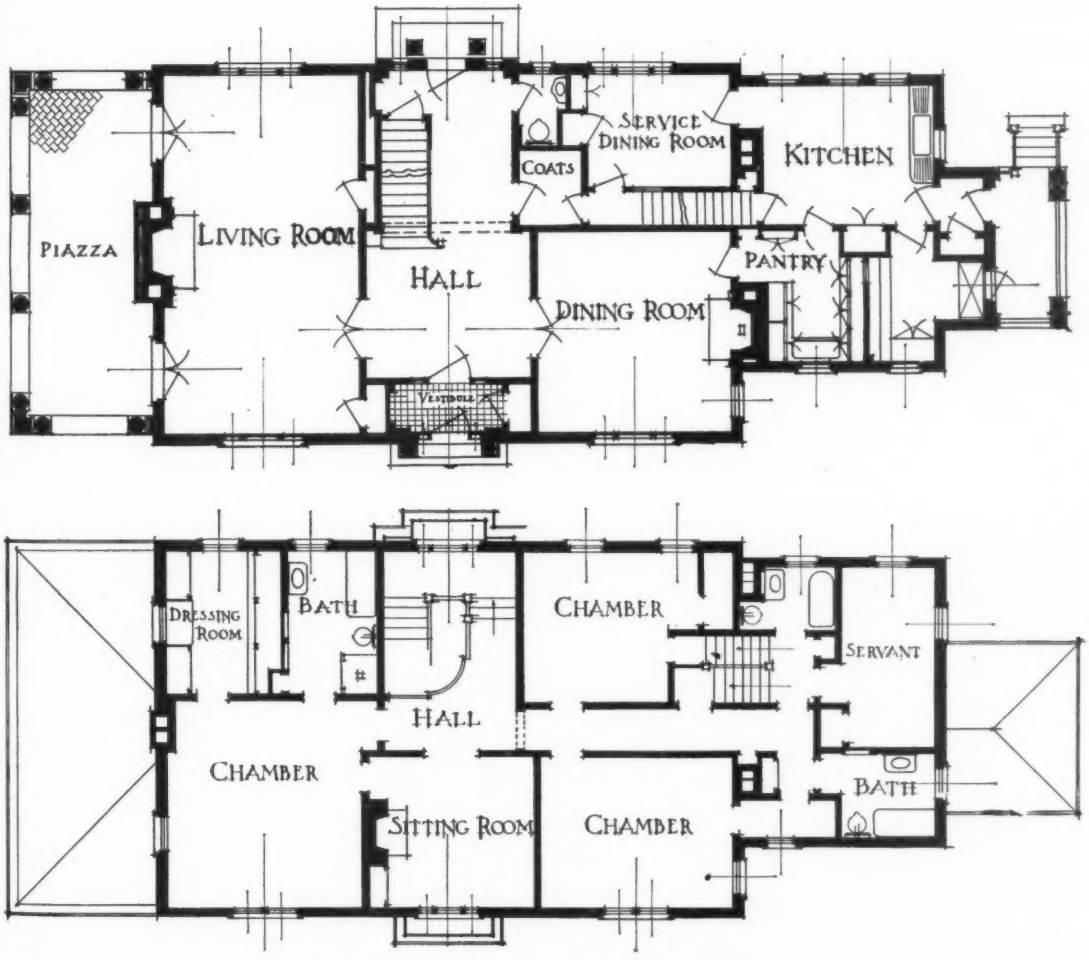

HOUSE OF W. H. MARLAND, ESQ., BROOKLINE, MASS.

MESSRS. KILHAM & HOPKINS, *ARCHITECTS*

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THE AMERICAN ARCHITECT

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VOL. CXI APRIL 25, 1917 No. 2157

COUNTRY AND SUBURBAN HOUSES

IT is probably due to the home loving instincts of the race that a larger proportion of our population is interested in home building than in any other form of architectural expression. Further than that, since the urban dwelling no longer represents the detached unit complete in itself with verandas, gardens and grounds, interest now seems to center in the country and suburban house. It is in the development of this type of home that the architect usually plays his most important role—that of educator and uplifter. From the homes of the laboring classes—which are now becoming the concern of many architects of ability—through the various strata to the most costly and highly developed modern house, architecture is contributing an increasingly important part to the education of the masses. That the individual is influenced by his daily environment is beyond question, for while the effect may be so gradual that he is not conscious of it, constant association with artistic surroundings results eventually in appreciation of them. It is a realization of these facts and conditions that makes the work of the country house architect so absorbing an occupation, and possibly accounts in some measure for its excellence. No type of building has improved in its architecture during the past score of years so much as the suburban house of moderate cost. Where a few years ago a large proportion of our suburban and small town houses were without architectural interest, we now find comparatively few that do not give evidence of the architect's work. This is as it should be and encourages us to hope for a time when our villages and countrysides will compare in architectural excellence with those of the countries of the old world. In matters of plan, equipment, and general convenience we have already surpassed anything to be found elsewhere in Christendom.

ASSISTING THE GOVERNMENT

IT would seem that the accusation frequently made during the past two years, by cynics both at home and abroad, viz., that as a nation our patriotism was directly commensurate with our profits—that our attitude toward every world-question was determined by the possibilities for making money which it presented—had been effectively answered since the severing of diplomatic relations with Germany in the early part of February. Producers of copper are now supplying this Government's war needs at something like one-half the market price. Producers and manufacturers of steel are doing likewise. The free use of the largest plants suitable for the manufacture of war supplies and munitions has been offered to the Government. The leaders in every industry, trade and profession have offered the facilities at their disposal for the use of the Government without thought of remuneration. More patriotic action than this—and, after all, actions speak louder than words—can scarcely be imagined.

In line with this general movement to assist the Government in every manner possible, the leading publishers of the country have offered their fullest co-operation. The letter printed elsewhere

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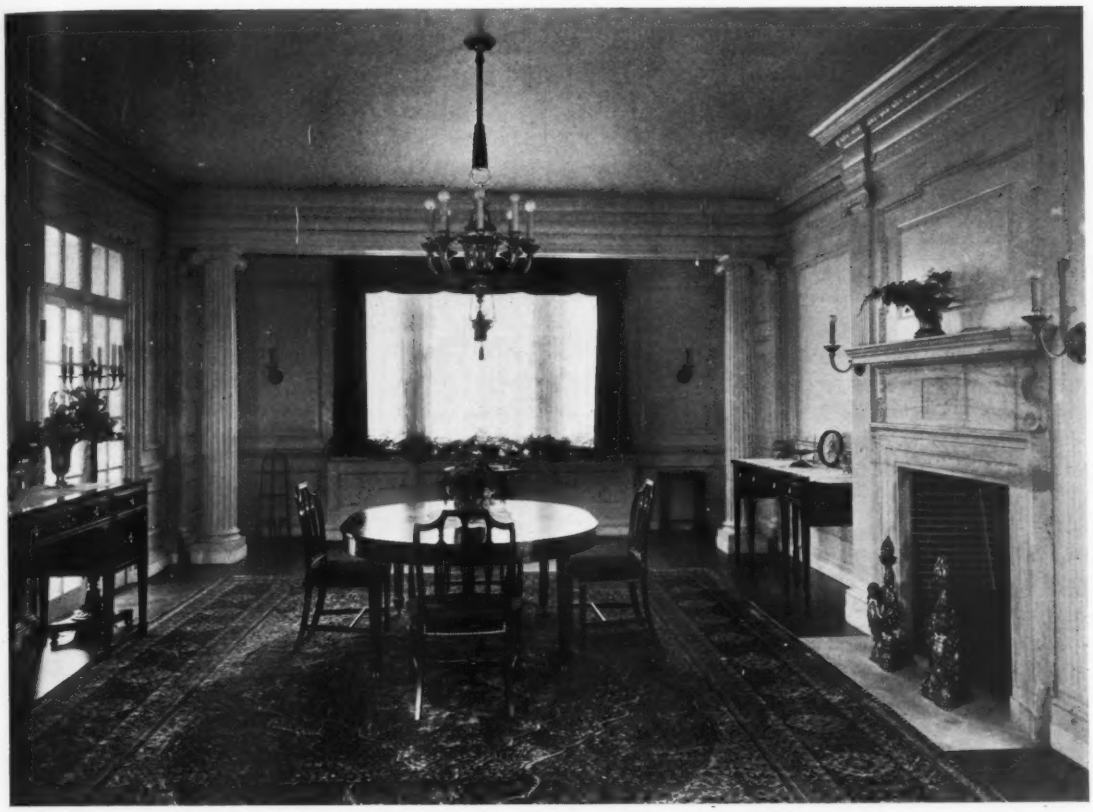
in this issue written by the United Publishers Corporation to President Wilson, although one of the first to come to our attention, will undoubtedly be followed by others from not only the technical publishing field, but from publishers of daily papers, general magazines and periodicals. That they can all be of very great help in arousing the interest, enthusiasm and co-operation of their readers, reaching as they do people in every class and condition, there is no reason to doubt.

THE INDUSTRIAL AND BUILDING SITUATION

THAT the entry of the United States into the world-war will produce a tremendous effect on the business of this country everyone concedes. Just what form it will take is not so apparent. It seems safe to assume, however, that the first effect will be to promote a tendency toward thrift in all classes. The savings banks should prosper and high-grade investments become popular. Funds for real estate improvements of sound character should be plentiful for at least a year since our war expenditures for that period can scarcely equal our war profits of the past two years. Under such conditions building should be active and upon a large scale. There is but one adverse factor—the generally prevailing impression that building costs are excessive. That impression undoubtedly grows out of comparison of present costs with those of the lean period before the European war and ignores entirely the shrinkage in the purchasing power of money that has taken place since 1914. But regardless of our ability to show a client that a dollar will only buy three-fourths as much of any commodity as it would three years ago, and that the cost of building is in practically the same ratio to former costs, he will continue to hesitate unless he can be convinced that no reason exists for expecting materially lower prices within a reasonable time. So the relevancy of an inquiry into the probable future of material and labor costs is apparent. The first important factor, quite obviously, is labor. Wages have increased in every industry and it is certain that they cannot be reduced without an economic upheaval of extraordinary proportions. The tendency toward a shorter working day is generally approved and everyone now realizes that it carries with it a higher labor cost. Transportation costs, potentially at least, have increased along with advances to labor. An advance in freights to meet higher labor costs is inevitable. An acute shortage of labor now exists in the United States, and no relief is in sight. It is inconceivable that Europe will permit any considerable emigration to our shores after the war, as every able-bodied man will be required for reconstruction work at home.

In most of the important industries preparations are under way for America's real entry into world trade when peace comes. Foreign business is now financially possible on a large scale. Our banking and monetary systems are now adjusted to its requirements. The building up of export business will tend to lessen internal competition with its resulting lowering of prices, and will go far toward stabilizing the values of the products of American mills and factories on levels higher if anything than those prevailing to-day.

And so it is possible to enumerate one reason after another in favor of the contention that present prices are low—not high. If owners can be made to see that the really pertinent comparisons of costs are with the future rather than the past, building cannot fail to take on greater activity. Viewed in this light, present prices for building materials actually appear to be bargain prices.



DINING ROOM

ALTERATIONS AND ADDITIONS TO HOUSE OF CHARLES I. CORBY, ESQ., GARRETT PARK, MD.
MR. CHARLES BARTON KEEN, *ARCHITECT*

(For additional illustrations of this house see plate section)

LIGHTING THE COUNTRY HOUSE

(Continued from page 260)

practical to employ expert care for the lighting plant, but in the building of a country home such things are of very great importance. No one is anxious to invest between one and two thousand dollars in a lighting plant for a home of ordinary size, to employ a good mechanic to take care of the plant and then to defray unreasonably high operating expenses.

But the factor which is of the greatest importance, regardless of the nature of the building in question, is that of dependability. The electric lighting plant which fails at frequent, or even at occasional, intervals (and it seems, of course, that they always do fail when the light is needed most) is of little more practical value than no lighting plant at all. Experiences of this kind encountered by the country owners of lighting plants have, of course, been due in many cases to the fact that the lighting plant was not given the proper kind of care, but behind this condition lies the more serious fact that many of the plants used were not properly designed or at least that the design and assembly was not well suited for the service which the lighting plant was expected to render.

It seems, however, that during the past five years some of the best engineering minds in the country have been devoted to the carrying out of extensive and painstaking experimental work with a view to producing dependable and economical isolated lighting plants. Work along these lines has been greatly helped by the experience encountered in building lighting systems for use on railway cars, ships, and particularly on automobiles. Perhaps the most important discovery result-

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ing from this experimental work was that real reliability and economy in an isolated lighting plant depended not only upon the use of good material and good design of the parts, but especially upon the relative design of the whole plant, *i.e.*, upon the design of each component part with particular reference to its assembly and operation with every other part of the plant. It was found that it was the absence of this balance of design which has so frequently given the owner of the plant trouble, even where the engines, generators and batteries used were of standard makes and good design.

The isolated lighting plant as now manufactured almost always consists of a gasoline engine (unless the installation is so fortunately situated as to be able to avail of natural water power), an electric generator, a storage battery, and a board on which are placed the necessary switches and indicators. The engine and generator are used for the actual generation of electric current and the battery as a sort of storage tank for electric energy, through the use of which electric light and power may be had at any time, whether the engine and generator are running or not. This general system will be seen to be the same as that used for electric lighting of automobiles.

The best designed lighting plants, as is the case with mechanical devices generally, are distinguished by remarkable simplicity both of design and operation. Direct connection of the engine and generator has eliminated the trouble usually experienced with belt drives in this kind of work. On account of the fact that the engine runs at a constant speed it has been found possible to substitute a simple mix-

DINING ROOM

HOUSE OF CLARENCE V. BURRAGE, ESQ., WALPOLE, MASS.

MESSRS. KILHAM & HOPKINS, *ARCHITECTS*

(For additional illustrations of this house, see plate section)

LIVING ROOM

HOUSE OF CLARENCE V. BURRAGE, ESQ., WALPOLE, MASS.

MESSRS. KILHAM & HOPKINS, *ARCHITECTS*

(For additional illustrations of this house, see plate section)

ing valve much like those used on gas grates for the ordinary carburetor. Any man who has ever owned an automobile knows what this in itself will mean in the way of eliminating trouble. The constant speed factor has also made it possible to utilize air cooling which at once eliminates all the trouble of overheating in warm weather and of freezing during the winter months. The influence of the automobile is again seen in the fact that the best isolated lighting plants are self-cranking, the pressure of a finger on the starting switch being enough to put the generating unit in operation. The attention required from the owner of the plant is also lessened by the fact that the generating unit stops automatically when the battery becomes fully charged. In reality, the time and attention required by the plant is no more than the amount necessary to fill the fuel tank (gasoline, kerosene, or natural gas may be used for fuel), to add occasionally to the oil supply in the crankcase of the engine, and to see that the cells of the storage battery are kept well filled with pure water. In exchange for this almost negligible amount of care and attention, the isolated lighting plant will give to its owner the same kind of electric light and power service which he enjoys in his city home at a cost in no case greater and in many cases less than he has to pay for electric current in the city. The current furnished by his plant will give all the light desired in every room of his house, garage, or barn and will, in addition, furnish electric power by means of which he may operate automatic pumping systems supplying running water to all parts of his home, electric fans, washing machines, vacuum cleaners, and all the other light and power appliances used in the city home. In case the

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prospective country home owner expects to go in for "gentleman farming" he will also find that the electric plant will furnish plenty of current for the operation of milking machines, cream separators, churns and other farm power appliances.

But the feature of the best isolated lighting plants manufactured to-day which will be of the greatest interest to the architect is that of real dependability. They can actually be counted on to supply electric light and power to the country home or clubhouse every hour out of the twenty-four and to continue to do this day after day and week after week with no more care and attention than described above. It is also interesting to note that modern manufacturing methods and large production facilities have made it possible to produce plants of this type which sell for as low as $275 complete.

The ability of electricity to take city conveniences and comforts into the country will undoubtedly act as a stimulus to the building of country homes, clubhouses, inns and other buildings of this general class, and the assurance that economy and dependability may be expected of the isolated plant will in all probability eventually lead architects generally to make plans and specifications with a view to the use of electricity, regardless of where the proposed building is to be located.

Notice of Removal

On May 1 next THE AMERICAN ARCHITECT will remove to its new offices at No. 243 West 39th Street, New York.

Personals

Messrs. Glucroft & Glucroft, architects, announce the removal of their offices to 729 Flushing Avenue, Brooklyn, N. Y.

Mr. Raymond B. Spencer, architect, Jackson, Miss., has opened a branch office at Clarksdale, Miss., in charge of Mr. Lyman Abbott. The business will be conducted under the firm name of Spencer & Abbott, 315 McWilliams Building, and catalogs and samples are desired.

Co-operating with the Government

Mr. Grosvenor B. Clarkson,
Secretary of the Council of National Defense,
Washington, D. C.

Dear Sir:

After consultation with our Board of Directors, the United Publishers Corporation has decided to offer to all Departments of the United States Government, the absolute co-operation of our industrial publications, covering many leading industries of this country, both in the matter of editorial co-operation and the free use of advertising space, for the purpose of assisting the Government in the mobilization of our industries, publicity in methods of finance and the promotion of any project undertaken by the Government during the present condition of war.

We cover the Iron, Steel and Machinery industries through the

Iron Age	New York
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Automobile	New York
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The Shoe industry through the Boot & Shoe Recorder of Boston.

The Building industry through the

The American Architect	New York
Building Age	New York
Metal Worker	New York

The Dry Goods field through the

Dry Goods Economist	New York
Dry Goods Reporter	Chicago
Drygoodsman	St. Louis
Pacific Coast Merchant	San Francisco

We shall seek to interest the active co-operation of these important business interests in their local centers and shall hope to especially assist in placing the Bond issue without expense to the Government.

In any of these matters your commands will receive our prompt and immediate attention.

Your very truly,

(Signed) H. M. SWETLAND, President.
UNITED PUBLISHERS CORPORATION.

New York, April 10, 1917.

WATER SUPPLY AND SEWAGE DISPOSAL FOR COUNTRY HOUSES

By GEORGE L. ROBINSON, *M. Am. Soc. C. E.*

ONE of the most important and interesting problems facing the owner who proposes building in the country is that of water supply. So much depends on its successful solution that even the design and location of the house is governed in part by that end. At the same time thought should be given to the proper disposal of sewage. These two problems are indeed most intimately related, as the selection of one frequently determines the location and design of the other. Good, clear, pure water and plenty of it, must be found, its source protected from any suspicion of contamination and ample provision made for storing and supplying adequately all buildings, lawns and gardens.

The water source may be from surface, spring, deep or flowing well. The surface supply frequently offers great advantages—as, for example, a mountain brook passing through restricted lands. Here the stream yields abundant supply which, by the use of small dams, may provide storage and sedimentation to carry over any summer drought. There is also the possibility of pumping by rams if it is impossible to carry the water by gravity.

Surface systems are, however, always under suspicion of contamination, as there is the chance ever present of pollution in some unforeseen manner.

Springs are perhaps the ideal source of supply. When a property is fortunate enough to have an ever-flowing spring the analysis of which shows an absence of contamination, it is a prize indeed. A masonry reservoir for impounding several days' storage with a gravity distribution system furnishing unlimited pure, cold water is priceless. Even though this spring water might need a pumping plant, it requires the simplest form of machinery and little attention.

Deep wells, of course, are so common and in most cases so satisfactory that, though no other water is available, yet by drilling in a properly selected place with depth and size of bore enough, one can as a rule find water in quantity and quality.

Deep well water is in most cases pure as it is taken from such depths that there is no chance of surface pollution. Of course, care must be given to the nature of the drilling. It is well to carry the casing down far enough below the rock surface to properly block off and seal carefully the casing with the solid rock so no chance of well contamination may develop by unclean ground water percolating down the side of the casing or entering from the surface at the pump head openings. In gravel or sand formation the casing is, of course, carried down the full depth of the well to the straining point.

Pumping machinery for deep wells is simple enough and the cost is measured largely in the size of the equipment, viz., the depth of the well and the amount of water to be pumped and against what head.

The flowing well as found in parts of Long Island and in some other places brings to the surface the water without deep well pumping equipment. Here it is only necessary to impound the flow to such an extent as to offer a reserve for the supply to the estate.

In any case, the pumping and the mechanical parts of a water supply must meet the requirements at hand so they may give the maximum supply needed under minimum production conditions.

It is not wise to cut down on water supply as the overhead charge on an adequate plant is more than made up by the saving of money and inconvenience due to failure in time of most need.

The owner should survey his property *first* for surface supply free from pollution and of adequate and sustained flow. *Second*, for springs fulfilling the same requirements. *Third*, in the event of neither of the foregoing being available, he should make careful study as to the geological

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HOUSE OF C. B. FARIS, ESQ., ST. LOUIS, MO.

HOUSE OF JOHN ALLEN LOVE, ESQ., ST. LOUIS, MO.
MR. GUY STUDY, *ARCHITECT*
(Floor plans not available)

formation of his land to determine the best location for a driven well. Much useful information can be obtained from the U. S. Government departments' surveys and from the State Geologist.

Further information should be gathered from the experience of his neighbor as to the wells—depth, yield, quality, etc. There are a number of expert well drilling firms who are able to express opinions formed from local experiences which will be found of the utmost value.

Fourth, after the supply is obtained the owner must determine how much water he needs in reserve—if for gardens, fire protection or only for domestic use. This will make the basis of the plant and indicate the nature of the system. It may be masonry reservoirs, steel pressure tanks, etc., in conjunction with deep well pumping engine with electric, gasoline or oil burning drive. Here the opinions of an expert should come to hand as the selection of equipment is one which requires knowledge and experience in this special subject.

There are some cases where the introduction of compressed air as a lifting device offers advantages not only as a pumping method but also for supplying a degree of aeration which is essential to stimulate the water. Some deep wells show discoloration due to iron or other mineral ingredients in solution. This can be as a rule taken out by filtration through bone charcoal or other mediums. There seems to be no reason to believe that the hardness of water has any injurious effects on the digestive system. There is every reason, however, to find and use soft water, as it lends itself so much more readily to domestic uses. When a water supply is not obvious and a number of points requiring judgment and experience develop, the owner or his architect will save time, worry and money by consulting with an expert.

A word of warning might be well as to the proper protection of the well head opening and the casing against pollution. While the filtering action of soil is an important factor in the purification of water and, broadly speaking, is an almost perfect filtering agent, yet it should be borne in mind that if the ground around a well curb opening or the floor of a pump house is permitted to become foul, that there is quite a real chance that some impure water might reach the well either directly through the opening in which the pump rods work or by percolation down the sides of the casing, or if it is a dug well by direct percolation through the super-saturated soil.

A stream used for drinking water should be protected as much as possible from the waste of fields where the ground is extensively manured or polluted.

Sewage Disposal

THE treatment of sewage has now developed far beyond any of the methods known even fifteen years ago. Of course, this is more particularly true of problems involving sewage treatment for institutions, large country hotels and the like, although it does follow in the smaller installations for country houses. All of the newer homes are liberally supplied with bathrooms and kitchen equipment. This produces a much larger amount of domestic sewage per capita than was formerly the case. The disposal plant must be a sanitary measure so designed that it may digest or mineralize the organic matter to the highest degree and at the same time separate and hold it back from the water which carries it from the house. It is usual to assume that one hundred gallons per person per day is the measure of domestic sewage from a country house, taking into account all the plumbing fixtures.

Hence, with an average population of ten, it is fair to say that there will be from nine hundred to twelve hundred gallons per day to be treated and disposed. The old system of broad disposal—that is, of discharging the sewage water directly on the ground after passing a small screen, is now to be avoided. This method offers the most serious objection in that it exposes bits of disease-carrying organic matter in such a way that flies and other insects are sure to bring infection back to the house. After all that has been said and written of this danger it is astounding to find once in a while an owner who will permit the installation of so dangerous a plant.

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Sewage on private places should always be treated underneath the soil. First, by means of a properly designed digestion tank, and second, by sub-soil filtration in one of its many forms.

The tanks may be circular, oblong, or other shape in plan, but so arranged in depth and capacity that the organic matter is properly decomposed and broken down. Quite a good many specially designed tanks for private plants have been tried out of late with some degree of success. It is the writer's experience, however, that what is gained in the digesting function is lost in the care which is required in operation and the much greater cost in the initial installation. Of course, for institutions with a relatively large population some form of "double-deck" tank has advantages in that it minimizes the sludge production, treats the sewage at a higher rate and is less apt to give off odors.

For private houses the water which carries the solids from the house passes through the tank and is discharged intermittently by means of an automatic siphon into the filter or absorption area beyond. The absorption of the water from the digestion or settling tank is brought about by distributing evenly over an area which, in the opinion of the engineer, is adequate for the purpose.

This is accomplished by laying a series of special sewage irrigating tiles (which are furnished in several models) in shallow trenches not over two feet deep, following the contours of the ground as nearly as possible.

As a rule, the field is divided into two or more sections or areas. The flow from the siphon is diverted by means of a valved cast iron gate placed in such a way that the effluent passes into the first, second or third area, as may be desired. The nature of the soil—whether gravel, loam or clay—determines the number of linear feet of tile necessary for each case in hand. In heavy soils it is frequently desirable to fill in the trenches around the tile with broken stone, gravel or cinder to aid in the absorption. Again, when conditions are most difficult, a complete filter area is constructed by excavating the entire surface and filling in with some proper filter material. In such a case as this undermains are laid and the purified effluent is allowed to pass off on the surface of the ground.

Under normal conditions the tile-trenches will dispose of something more than two gallons per foot per day. The diverting gate should be turned by someone on the place once every week so that each field may have a week's rest while the next one in its turn is at work. These plants operate successfully both winter and summer. The fields may be placed at any convenient place where the fall or grade from the house permits. They may be under a lawn or even in a garden. The tanks should be cleaned out about once each year. That is, the organic matter which forms as a floating mat should be removed to prevent clogging and too much decrease in volume in the tank. This matter may be composted with other manure and used as fertilizer, though not over vegetables which are to be eaten raw.

The success of a sewage disposal plant depends very largely upon the care with which it is installed. Expert workmen should be employed who understand the placing of the tile lines to proper grades and who use the utmost care in back-filling the trenches. There are a number of firms in New York who undertake this work and guarantee the plant as to material and workmanship. When it comes to plants of larger size a number of elements enter the design which demand quite a different form of treatment. For an institution of some three thousand persons the sewage production may run up as high as four hundred thousand gallons per day. Here special liquefying tanks treat the solids, filters of numerous types purify the effluent, and lastly, complete sterilization can be brought about by chloride of lime solution or liquid chlorine properly applied. Special apparatus is available for dosing the filtrate, and such plants as above outlined are usually acceptable to State Boards of Health.

There are no two problems which should receive more careful thought than water supply and sewage disposal. They are intimately related, both requiring knowledge, skill and judgment in design and installation.

LIVING ROOM, LOOKING TOWARD DINING ROOM

THE DINING ROOM, PANELLED IN OAK, STAINED A DARK BROWN. WHITE PLASTER CEILING

ADDITION TO HOUSE OF SPENCER K. MULFORD, ESQ., WYNCOTE, PA.

MESSRS. WALTER T. KARCHER AND LIVINGSTON SMITH, *ARCHITECTS*

(For additional illustrations and description see text pages)

LIVING ROOM—HOUSE OF SPENCER K. MULFORD, ESQ., WYNCOTE, PA.

(For additional illustrations of this house, see plate section)

Addition to Residence of Spencer K. Mulford, Esq., Wyncote, Pa.

WALTER T. KARCHER & LIVINGSTON SMITH, *Architects*

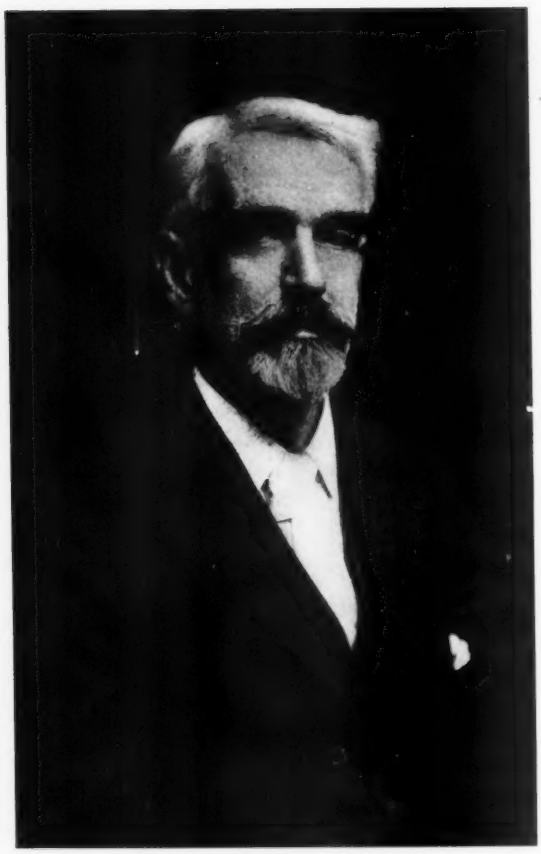
AT the head of a great sweeping rise of lawn this residence, several times improved, commands a fine view over the surrounding valley. The *raison d'etre* of this alteration was the need of a roomy library, new arrangement and increase in bedroom space above and the desire for amplification and improvement of the dining room. Various alterations throughout the house were made at the time, but they were of distinctly practical rather than esthetic value.

The library connects by an alcove with a fine Gothic hall, and by the archway shown, directly with the dining room. The steps were added purely for effect. In treatment it was purposely attempted to blend several periods of the Gothic work in order to obtain the atmosphere of those English rooms that have this atmosphere only because they have been worked over by generations of changes.

The dining room was held to stricter period lines. The ceiling of the Cabinet of Cardinal Wolsey at Hampton Court was freely used as an inspiration for the plaster work. The furniture is old, and special space was provided for the antique buffet.

The oak in the dining room is brown, while in the living room it has an aged gray cast, which contrasts well with the antique ivory ceiling and the maroon tile of the floor.

The principal bedroom is in light silvery gray, the same as the furniture, and like the latter, the woodwork of the mantel contains real wedgewood inserts. This light color is enlivened by the richness of the hangings and the rug.



WILLIAM ROTCH WARE